FIG. 1

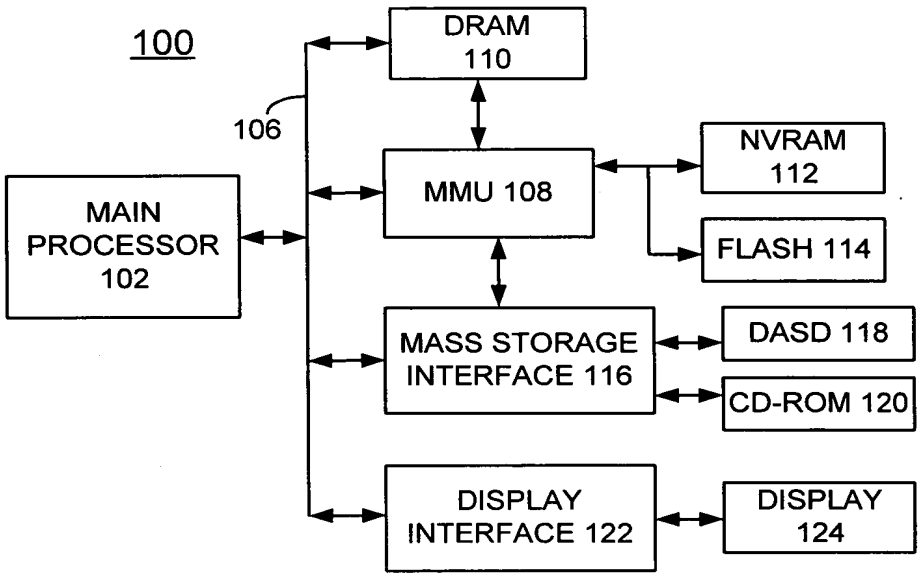
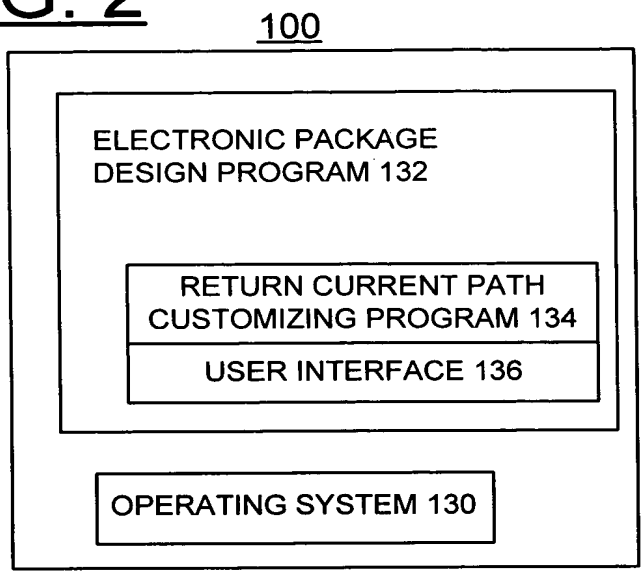

100
DRAM 110
106
NVRAM 112
MMU 108
MAIN PROCESSOR 102
FLASH 114
MASS STORAGE INTERFACE 116
DASD 118
CD-ROM 120
DISPLAY INTERFACE 122
DISPLAY 124

FIG. 2


100
ELECTRONIC PACKAGE DESIGN PROGRAM 132
RETURN CURRENT PATH CUSTOMIZING PROGRAM 134
USER INTERFACE 136
OPERATING SYSTEM 130

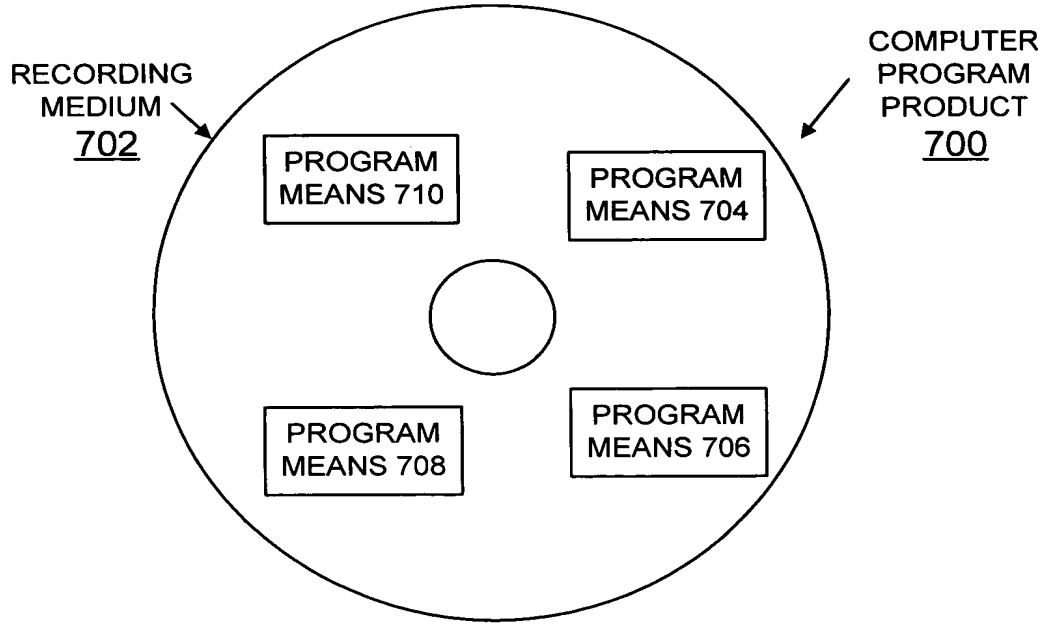

RECORDING MEDIUM 702
COMPUTER PROGRAM PRODUCT 700
PROGRAM MEANS 710
PROGRAM MEANS 704
PROGRAM MEANS 708
PROGRAM MEANS 706

FIG. 7

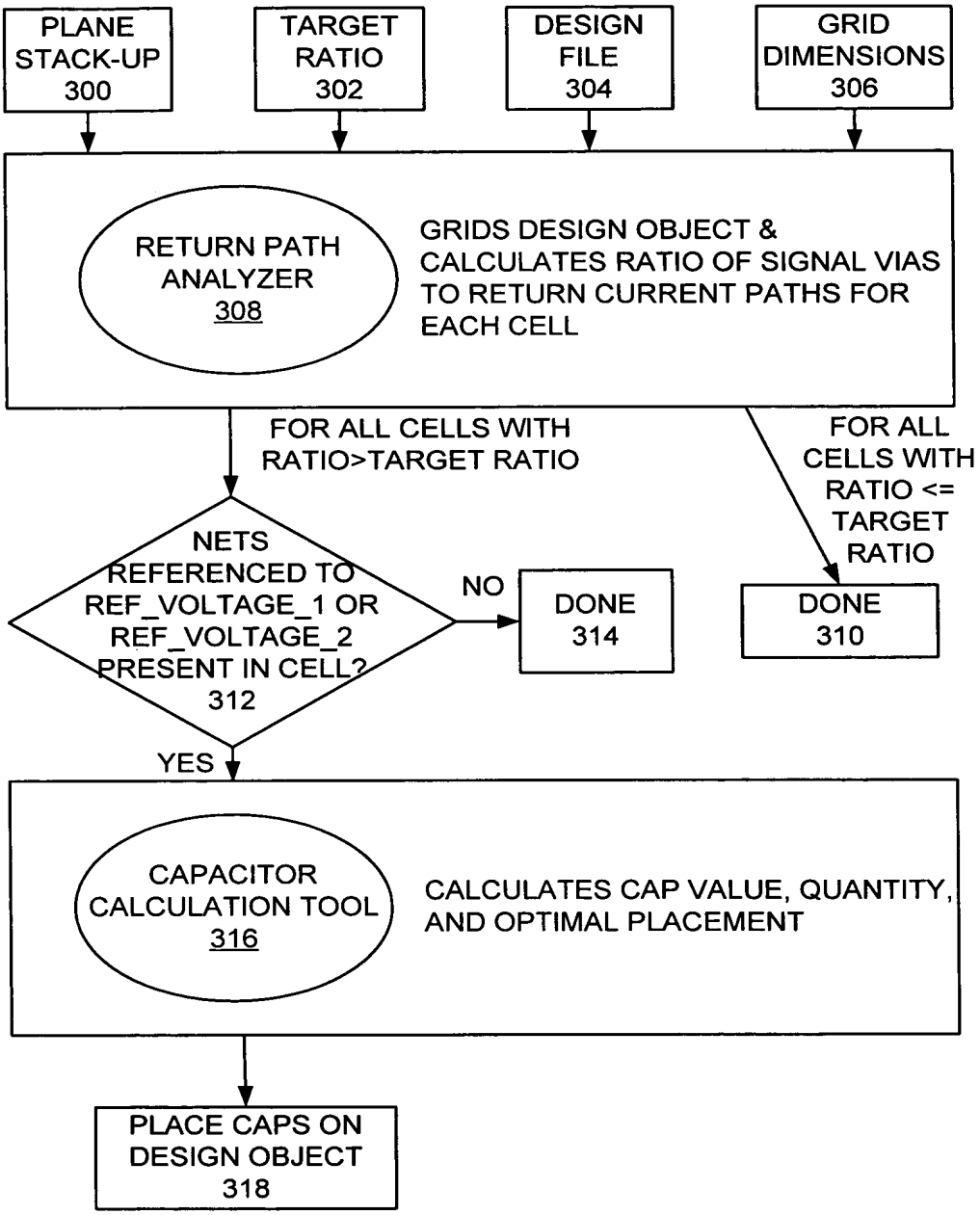

PLANE STACK-UP 300
TARGET RATIO 302
DESIGN FILE 304
GRID DIMENSIONS 306
RETURN PATH ANALYZER 308
GRIDS DESIGN OBJECT & CALCULATES RATIO OF SIGNAL VIAS TO RETURN CURRENT PATHS FOR EACH CELL
FOR ALL CELLS WITH RATIO>TARGET RATIO
FOR ALL CELLS WITH RATIO <= TARGET RATIO
NETS REFERENCED TO REF_VOLTAGE_1 OR REF_VOLTAGE_2 PRESENT IN CELL? 312
NO
DONE 314
DONE 310
YES
CAPACITOR CALCULATION TOOL 316
CALCULATES CAP VALUE, QUANTITY, AND OPTIMAL PLACEMENT
PLACE CAPS ON DESIGN OBJECT 318

FIG. 3

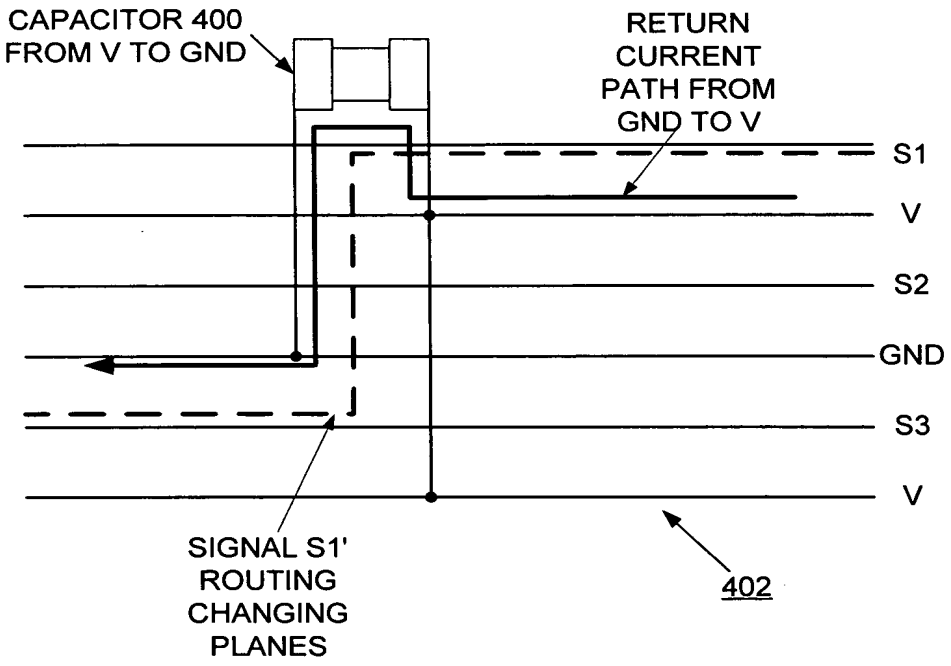

CAPACITOR 400
FROM V TO GND
RETURN
CURRENT
PATH FROM
GND TO V
S1
V
S2
GND
S3
V
SIGNAL S1'
ROUTING
CHANGING
PLANES
402

FIG. 4

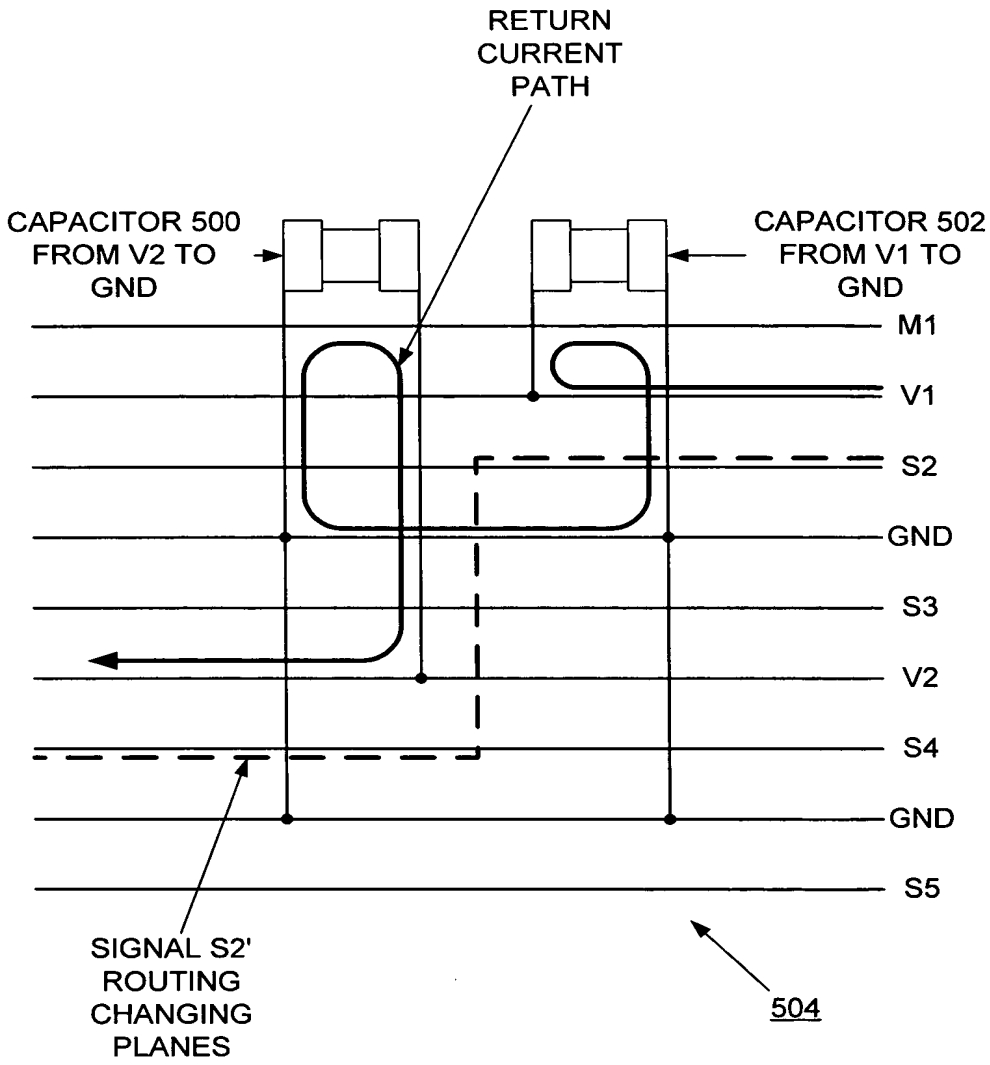

RETURN
CURRENT
PATH
CAPACITOR 500
FROM V2 TO
GND
CAPACITOR 502
FROM V1 TO
GND
M1
V1
S2
GND
S3
V2
S4
GND
S5
SIGNAL S2'
ROUTING
CHANGING
PLANES
504

FIG. 5

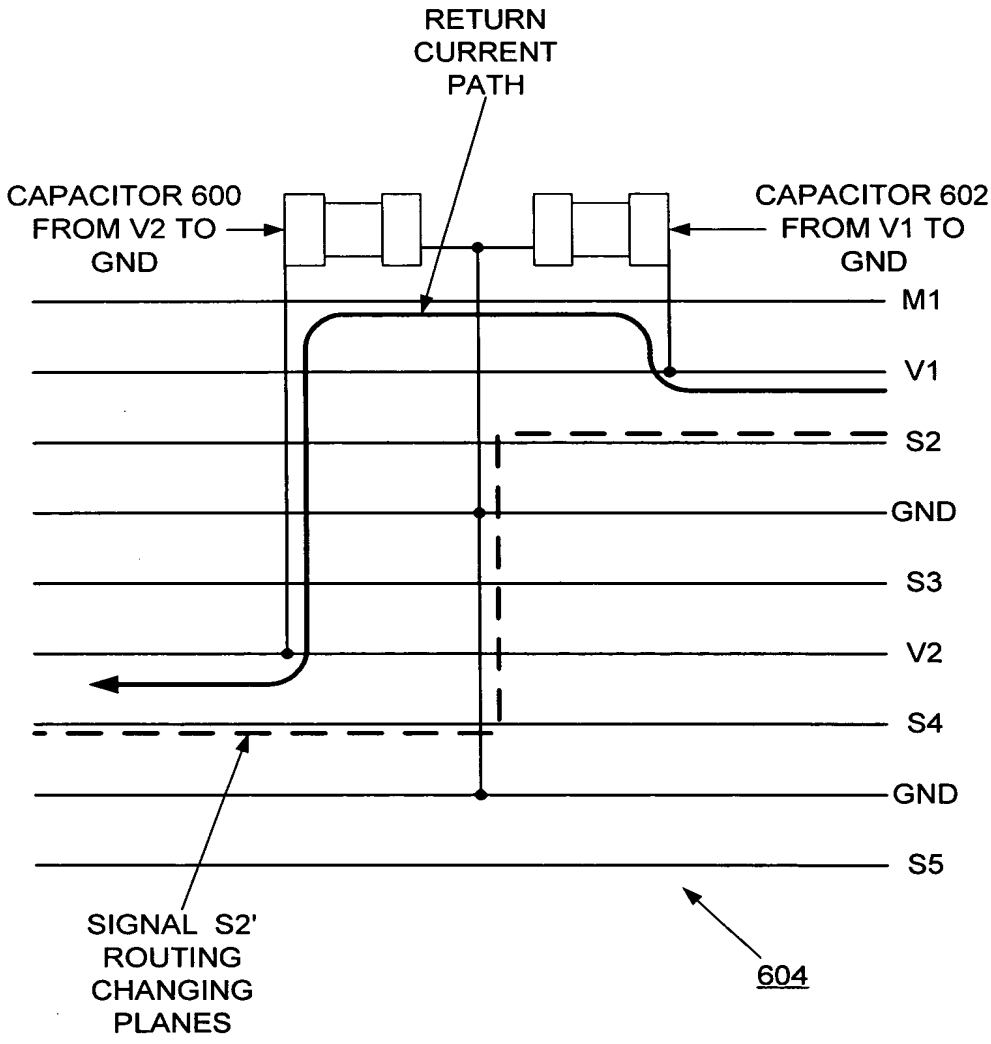

RETURN
CURRENT
PATH
CAPACITOR 600
FROM V2 TO
GND
CAPACITOR 602
FROM V1 TO
GND
M1
V1
S2
GND
S3
V2
S4
GND
S5
SIGNAL S2'
ROUTING
CHANGING
PLANES
604

FIG. 6